

What is claimed is:

1. An automated vehicle rental, return and billing system  
5 wherein each vehicle, to be rented and removed from a vehicle  
renting lot, has a unique vehicle identifier, with said lot  
having at least two of said vehicles; and wherein each  
10 vehicle is provided with transmitter/receiver means and memory  
storage means linked thereto, with said vehicle identifier  
being initially stored in said memory storage means; wherein  
15 each of said vehicles further comprises odometer reading sensor  
means operatively linked to an odometer of the vehicle; wherein  
each of said vehicles further comprises fuel sensor means linked  
to a fuel level sensor of the vehicle; said system further  
comprising a data collection data base and means for enabling  
20 each of the transmitter/receiver means to communicate with the  
data collection data base, when each of the vehicles is returned  
to the vehicle rental lot, to transmit stored final odometer  
reading and fuel level to the data collection data base for  
remote calculation of charges and check-in of the vehicle when  
25 the vehicle is returned to the vehicle rental lot and wherein  
each of the transmitter/receiver means is adapted to separately  
communicate with the data base without interference with  
communication from another of said transmitter/receiver means.

2. The system of claim 1, wherein the system further  
30 comprises a check out site in operative communication with the  
transmitter/receiver means with means at said site for printing  
out a rental agreement having said personal identification,

vehicle identification, rental options and credit card information, and wherein the check-out site comprises a terminal with correlative personal and vehicle identification transmitted thereto by one of said data collection data base and  
5 transmitter/receiver means for use as a security check prior to permitting the vehicle to exit the vehicle rental lot.

3. The system of claim 1 wherein the fuel sensor means further comprises analysis means for interpreting factors relevant to the meaning of a particular fuel level sensor  
10 readings for the vehicle under varying vehicle operating conditions, said analysis means comprising correlation means to evaluate a vehicle fuel tank as being filled when the vehicle is not moving and the fuel in the fuel tank is simultaneously rising whereby a fuel fill-up action is detected and mileage and  
15 time details thereof stored in said memory means for transmittal and wherein said analysis means further comprise means for detecting non level surfaces upon which the vehicle is positioned with correlation means for compensating for deviations of fuel level effected thereby.

20 4. The system of claim 1, wherein the transmitter/receiver means provides information of location thereof within the rental lot and information related to the vehicle to which it is attached to mapping means for tracking location and readiness of the vehicle for re-renting.

25 5. The system of claim 4, wherein at least two vehicles are mapped on said mapping means for said tracking location and whereby vehicle system operations can be prioritized on said

vehicles as a function of vehicle location and type of vehicle and wherein a real time automated inventory of available vehicles is obtainable from said mapping means.

6. The system of claim 4 wherein transmitter/receiver means  
5 of the individual vehicles are capable of communicating with each other and the data base to provide said information of location.

7. The system of claim 1, wherein at least one of the  
10 odometer and fuel sensing means and transmitter/receiver means is interchangeable between different vehicles and wherein said at least one of said odometer and fuel sensing means and transmitter/receiver means is programmable to be adapted to be operable for the different vehicles.

8. The system of claim 1, wherein the system further  
15 comprises a personalized greeting display which is visible at or proximate to said lot which displays a personalized message to a driver of the vehicle with personalized information transmitted thereto by said transmitter/receiver means.

20 9. The system of claim 1, wherein said storage means is adapted to store maintenance information unique to said vehicle.

25 10. The system of claim 1, wherein the transmitter/receiver means further comprises timing means and sensing means to determine and store periods of time in which the vehicle is located in said lot to determine efficiency in  
30 vehicle processing.

11. The system of claim 4, wherein fixed node devices capable of communication with the transmitter/receiver means, with each other and the data collection data base; are disposed within the rental lot to facilitate communication of data and position of vehicles within the lot.

12. The system of claim 1, wherein identification of a renter of the vehicle is associated in the memory storage means during a pre-determined rental period.

13. The system of claim 1, wherein the vehicle further contains data entry means for the renter to enter personal identification and desired rental options and credit card charging means and wherein the transmitter/receiver means stores the personal identification in said memory storage means and transmits said personal identification, desired rental options and credit card information to the data collection data base while the vehicle is in the vehicle rental lot and wherein one of the data collection data base and transmitter/receiver transmits validation instructions to validate permission for removal of the vehicle from the rental lot.

14. An automated vehicle rental system, wherein each vehicle further contains data entry means for a renter of said vehicle to enter personal identification and desired rental options and credit card charging means and wherein the vehicle contains transmitter/receiver means having memory storage means to store the personal identification in said memory storage means and to transmit said personal identification, and entered desired rental options and credit card information to a data collection

data base while the vehicle is in a vehicle rental lot and wherein the data collection data base transmits to the transmitter/receiver means validation instructions to enable activation of the vehicle with activation means.

- 5        15. The automated vehicle rental system of claim 14, wherein the data entry means are removable and adapted to be positioned and operatively linked to transmitter/receiver means in other vehicles.